
Lab Dept: Chemistry

Test Name: COENZYME Q10, REDUCED AND TOTAL

General Information

Lab Order Codes: CEQ

Synonyms: CoQ10

CPT Codes: 82542 – Column chromatography, includes mass spectrometry, if performed, non-drug analytes, not elsewhere specified, qualitative or quantitative, each specimen

Test Includes: CoQ10 Reduced reported in mcg/L; Total CoQ10 reported in mcg/L and % Reduced CoQ10 reported as %

Logistics

Test Indications: Diagnosis of coenzyme Q10 deficiency in mitochondrial disorders, monitoring coenzyme Q10 in patients receiving statin therapy, monitoring coenzyme Q10 status during treatment of various degenerative conditions including Parkinson and Alzheimer disease.

Patients who are diagnosed as having oxidative phosphorylation diseases are often treated with coenzyme Q10. Coenzyme Q10 is the only therapeutic agent for which evidence suggests a beneficial effect in some patients with oxidative phosphorylation diseases.

Rare pediatric patients have been described with coenzyme Q10 deficiencies. These individuals present with myopathies and can be identified by quantitation of coenzyme Q10 in blood and in tissue mitochondria such as skeletal muscle.

Lab Testing Sections: Chemistry – Sendouts

Referred to: Mayo Medical Laboratories (MML Test: Q10)

Phone Numbers: MIN Lab: 612-813-6580

STP Lab: 651-220-6550

Test Availability: Daily, 24 hours

Turnaround Time: 3 - 7 days, performed Monday – Friday (8 AM)

Special Instructions: See [Patient Preparation](#)

Specimen

Specimen Type:	Blood
Container:	Green top (Lithium or Sodium heparin) tube
Draw Volume:	1.5 mL (Minimum: 0.9 mL) blood
Processed Volume:	0.5 mL (Minimum: 0.3 mL) plasma
Collection:	Routine venipuncture. Mix tube thoroughly by gentle inversion. Place specimen on wet ice. Send to laboratory immediately.
Special Processing:	Lab Staff: Maintain specimen on wet ice and process within 3 hours of draw. Centrifuge as soon as possible after collection, avoid aliquoting the buffy coat as part of the serum aliquot. Place plasma aliquot specimen in a plastic, round bottom screw-capped vial. Store and ship frozen in a plastic vial. Forward promptly. Note: Off-site specimen collections should be processed (centrifuge, aliquot and refrigerate) prior to sending to Children's laboratories for optimal specimen integrity. Refrigerated specimens MUST arrive at Children's within 8 hours of collection to be viable.
Patient Preparation:	Fasting specimen preferred (8 hours).
Sample Rejection:	Hemolysis; thawed samples; mislabeled or unlabeled specimens

Interpretive

Reference Range:

Age	Reference Value
CoQ10 Reduced	
<18 years:	320 - 1376 mcg/L
≥18 years:	415 - 1480 mcg/L
Total CoQ10	
<18 years:	320 - 1558 mcg/L
≥18 years:	433 - 1532 mcg/L
% Reduced CoQ10	
<18 years:	93 - 100%

≥18 years:	92 - 98%
When abnormal results are detected, a detailed interpretation is provided that includes an overview of the results, their significance, and recommendations for follow-up testing.	
Miles MV, Horn PS, Tang PH, et al: Age-related changes in plasma coenzyme Q10 concentrations and redox state in apparently healthy children and adults. Clin Chem Acta 2004; 34:139-144	

Critical Values:

N/A

Limitations:

CoQ10 is sensitive to specimen handling and transport temperature. Failure to follow the specimen handling and transportation recommendations may lead to false-positive results.

Methodology:

High Performance Liquid Chromatography (HPLC) with Electrochemical Detection

References:

[Mayo Medical Laboratories](#) (October 2014)

Updates:

5/23/2007: Test moved from Emory University to Mayo Medical Laboratories. Please note change in specimen requirements, reference ranges and method.
7/12/2010: Units update from ug/L to mcg/L. Specimen volume update.
8/28/2013: Added off-site processing instructions.
1/26/2016: CPT update